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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/890,543	08/02/2001	Kazunori Fushimi	GOT-143NP	4662

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EXAMINER	
LIU, JOSHUA C	

ART UNIT	PAPER NUMBER
2121	7

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/890,543	FUSHIMI, KAZUNORI	
	Examiner	Art Unit	
	Joshua C Liu	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *1/16/2004 (eff. filing date 12/28/99)* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This action is in response to Amendment filed 1/16/2004, which has been fully considered.

2. Amended claims 1 and 3, and new claims 4-8 have been examined.

3. This Action is NON-FINAL.

Specification

4. Examiner's objection to the Specification has been fully addressed by Applicant's Amendment.

Response to Arguments

5. Applicant's arguments filed 1/16/2004 have been fully considered but they are not persuasive.

- Applicant argues in pg. 7-8 of Remarks that Masatake (Japanese Patent Publication # 7-54806; Published 02/28/1995) does not suggest averaging the value of a joystick voltage. While Masatake does not explicitly suggest averaging the value of a joystick voltage, it does suggest using a first-order-lag response formula (Masatake ¶33-38). Calculating the average value of the input value read at every sampling time over a predetermined number of past occasions, or the moving average, is a first-order lag algorithm. Therefore, the Examiner maintains that Masatake teaches averaging the value of a joystick voltage. Furthermore, Applicant's argument is rendered moot by new ground of rejection in view of Hirai (US Patent Number 5,123,331; Issued 6/23/1992).

- Applicant argues in pg. 8 of Remarks that Masatake does disclose an operation start detecting means. That is consistent with the Examiner's position. However, Applicant misunderstood Examiner's statement in the §103 rejection of claim 3 that "[h]owever, Masatake does not teach an operation start means which detects an operation start when the actuator control device is pushed over from the neutral position, *wherein the computation means increases the output computation value to an effective maximum value when operation starts*." The Examiner was stating that Masatake does not teach increasing the output computation value to an effective maximum value when operation starts. Therefore, the Examiner the Examiner maintains the §103 rejection of claim 3 as being obvious over Masatake in view of Satoru.
- Applicant argues in pg. 8 of Remarks that Satoru does not suggest a momentary increase to a predetermined maximum current. However, Satoru does explicitly suggest a momentary increase to a predetermined maximum current (Satoru Fig. 2; Pg. 3 bottom left quadrant (see English translation pg. 5 ¶2), "Figure 2 is... the output increases only for instant time t."). Therefore, the Examiner maintains the §103 rejection of claim 3 as being obvious over Masatake in view of Satoru.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirai (US Patent Number 5,123,331; Issued 6/23/1992).

Claim 4

Claim 4's

A signal processor for use between a manually operable input arrangement and a proportional solenoid valve that is coupled to a hydraulic cylinder, the input arrangement providing an input signal, said signal processor comprising:
(a) means for sampling the input signal to generate a sequence of digital samples;
(b) means for generating a sequence of digital computed values from a latest one of the samples and a predetermined number of earlier samples;
(c) means for converting the digital computed values to an analog signal; and
(d) a drive circuit that supplies drive current to the proportional solenoid valve in response to the analog signal.

is anticipated by Hirai, wherein Hirai teaches:

- A stability compensating circuit of actuator system comprising:

  (a)-(c) See (Hirai Fig. 1; Col 1 L. 60-Col 2 L. 48, "In a stability... the actuator."; Col 3 L. 42-Col 4 L. 8, "The control loop... can be compensated."); and

  (d) See (Hirai Fig. 1 Element 15).

Claim 6

Claim 6 recites "The signal processor of claim 4, wherein the computed values are averages." Claim 6 is anticipated by Hirai:

- See §102 rejection for claim 4, and (Hirai Col 3 L. 60-65).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1, 3, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masatake (Japanese Patent Publication # 7-54806; Published 02/28/1995), in view of Hirai (US Patent Number 5,123,331; Issued 6/23/1992), and further in view of Satoru (Japanese Patent Publication # 4-143334; Published 05/18/1992).

Claim 1

- Regarding claim 1, Masatake discloses an actuator control device (Masatake Fig. 1) comprising:
  - A lever (Masatake Fig. 1 Element 8), which is a joystick input device, generates electrical signal according to an operating amount from a neutral position (Masatake §0019, "[m]oreover, 7 is a potentiometer... via a controller.");
  - A signal processor (Masatake Fig. 1 Element 13) transforms the lever position signal (Masatake §0022, "[t]he controller... in drawing 2.") into lever output signal by applying a first-order lag (Masatake §0006-7, "[a]n operation-cycle... gain selection means."). Calculating the average value of the input value read at every sampling time over a predetermined number of past occasions, or the moving average, is a first-order lag algorithm; and
  - And an operation output section (Masatake Fig. 1 Element 21) which computes an output computation value set according to the lever output signal (Masatake §0033, "[t]his gain K... following several 1.").

However, Masatake does not explicitly teach input means which inputs the average value of the joystick voltage input value Vi read at every sampling time over a predetermined number of past occasions as a joystick voltage computation value Vic. Hirai teaches inputting the average value of voltage input value read at every sampling time over a predetermined number of past occasions as a voltage computation value (Hirai Fig. 1; Col 1 L. 60-Col 2 L. 48, "In a stability... the actuator."; Col 3 L. 42-Col 4 L. 8, "The control loop... can be compensated."), –as to compensate for the stability of the actuator (Hirai Col 2 L. 37-42, "and a digital filter... is compensated.").

However, Masatake in view of Hirai does not teach an operation start means which detects an operation start when the actuator control device is pushed over from the neutral position, wherein the computation means increases the output computation value to an effective maximum value when operation starts. Satoru teaches a momentary increase to a predetermined maximum current (Satoru Fig. 2; Pg. 3 bottom left quadrant (see English translation pg. 5 ¶2), "Figure 2 is... the output increases only for instant time t."), –so that the responsiveness of the pilot switch valve increases (Satoru Pg. 4 Top Right Quadrant L. 19-20, "[t]he responsiveness to the pilot switch valve accelerates."). Therefore, it would have been obvious to one of ordinary skill in the art, in view of Hirai and further in view of Satoru, to modify Masatake by calculating a moving average value and adding an operation start means which detects an operation start when the actuator control device is pushed over from the neutral position, wherein the computation means

increases the output computation value to an effective maximum value when operation starts.

Claim 3

- Regarding claim 3, Masatake discloses an actuator control device (Masatake Fig. 1) comprising:
  - A lever (Masatake Fig. 1 Element 8), which is a joystick input device, generates electrical signal according to an operating amount from a neutral position (Masatake §0019, "[m]oreover, 7 is a potentiometer... via a controller.");
  - A signal processor (Masatake Fig. 1 Element 13) transforms the lever position signal (Masatake §0022, "[t]he controller... in drawing 2.") into lever output signal by applying a first-order lag (Masatake §0006-7, "[a]n operation-cycle... gain selection means."). Calculating the average value of the input value read at every sampling time over a predetermined number of past occasions, or the moving average, is a first-order lag algorithm; and
  - And an operation output section (Masatake Fig. 1 Element 21) which computes an output computation value set according to the lever output signal (Masatake §0033, "[t]his gain K... following several 1.").

However, Masatake does not explicitly teach input means which outputs the average value of the joystick voltage input value Vi read at every sampling time over a predetermined number of past occasions as a joystick voltage computation value

Vic. Hirai teaches outputting the average value of voltage input value read at every sampling time over a predetermined number of past occasions as a voltage computation value (Hirai Fig. 1; Col 1 L. 60-Col 2 L. 48, "In a stability... the actuator."; Col 3 L. 42-Col 4 L. 8, "The control loop... can be compensated."), –as to compensate for the stability of the actuator (Hirai Col 2 L. 37-42, "and a digital filter... is compensated.").

However, Masatake in view of Hirai does not teach an operation start means which detects an operation start when the actuator control device is pushed over from the neutral position, wherein the computation means increases the output computation value to an effective maximum value when operation starts. Satoru teaches a momentary increase to a predetermined maximum current (Satoru Fig. 2; Pg. 3 bottom left quadrant (see English translation pg. 5 ¶2), "Figure 2 is... the output increases only for instant time t."), –so that the responsiveness of the pilot switch valve increases (Satoru Pg. 4 Top Right Quadrant L. 19-20, "[t]he responsiveness to the pilot switch valve accelerates."). Therefore, it would have been obvious to one of ordinary skill in the art, in view of Hirai and further in view of Satoru, to modify Masatake by calculating a moving average value and adding an operation start means which detects an operation start when the actuator control device is pushed over from the neutral position, wherein the computation means increases the output computation value to an effective maximum value when operation starts.

Claims 8

- Regarding claim 8, Masatake discloses an actuator control device (Masatake Fig. 1) comprising:
  - A lever (Masatake Fig. 1 Element 8), which is a joystick input device, generates electrical signal according to an operating amount from a neutral position (Masatake §0019, "[m]oreover, 7 is a potentiometer... via a controller.");
  - A neutral switch (Masatake Fig. 1 Element 10) which detects when the joystick is displaced from a neutral position;
  - A signal processor (Masatake Fig. 1 Element 13) transforms the lever position signal (Masatake §0022, "[t]he controller... in drawing 2.") into lever output signal by applying a first-order lag (Masatake §0006-7, "[a]n operation-cycle... gain selection means."). Calculating the average value of the input value read at every sampling time over a predetermined number of past occasions, or the moving average, is a first-order lag algorithm; and
  - And an operation output section (Masatake Fig. 1 Element 21) which computes an output computation value set according to the lever output signal (Masatake §0033, "[t]his gain K... following several 1.").

However, Masatake does not explicitly teach input means which outputs the average value of the joystick voltage input value Vi read at every sampling time over a predetermined number of past occasions as a joystick voltage computation value Vic. Hirai teaches a stability compensating circuit of actuator

system comprising means for sampling the input signal to generate a sequence of digital samples, means for generating a sequence of moving averages, means for converting the digital computed values to an analog signal, and a drive circuit (Hirai Fig. 1; Col 1 L. 60-Col 2 L. 48, "In a stability... the actuator."; Col 3 L. 42-Col 4 L. 8, "The control loop... can be compensated."), in order to compensate for the stability of the actuator (Hirai Col 2 L. 37-42, "and a digital filter... is compensated.").

However, Masatake in view of Hirai does not teach an operation start means which detects an operation start when the actuator control device is pushed over from the neutral position, wherein the computation means increases the output computation value to an effective maximum value when operation starts. Satoru teaches a momentary increase to a predetermined maximum current (Satoru Fig. 2; Pg. 3 bottom left quadrant (see English translation pg. 5 ¶2), "Figure 2 is... the output increases only for instant time t."), –so that the responsiveness of the pilot switch valve increases (Satoru Pg. 4 Top Right Quadrant L. 19-20, "[t]he responsiveness to the pilot switch valve accelerates.").

Therefore, it would have been obvious to one of ordinary skill in the art, in view of Hirai and further in view of Satoru, to modify Masatake by including means for sampling the input signal to generate a sequence of digital samples, means for generating a sequence of moving averages, means for converting the digital computed values to an analog signal, and a drive circuit, and adding an operation start means which detects an operation start when the actuator control

device is pushed over from the neutral position, wherein the computation means increases the output computation value to an effective maximum value when operation starts.

10. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masatake (Japanese Patent Publication # 7-54806; Published 02/28/1995) in view of Hirai (US Patent Number 5,123,331; Issued 6/23/1992).

Claims 5 and 7

- Regarding claims 5 and 7, Masatake discloses an actuator control device (Masatake Fig. 1) comprising:
  - A lever (Masatake Fig. 1 Element 8), which is a joystick input device, generates electrical signal according to an operating amount from a neutral position (Masatake §0019, "[m]oreover, 7 is a potentiometer... via a controller.");
  - A neutral switch (Masatake Fig. 1 Element 10) which detects when the joystick is displaced from a neutral position;
  - A signal processor (Masatake Fig. 1 Element 13) transforms the lever position signal (Masatake §0022, "[t]he controller... in drawing 2.") into lever output signal by applying a first-order lag (Masatake §0006-7, "[a]n operation-cycle... gain selection means."). Calculating the average value of the input value read at every sampling time over a predetermined number of past occasions, or the moving average, is a first-order lag algorithm; and

- And an operation output section (Masatake Fig. 1 Element 21) which computes an output computation value set according to the lever output signal (Masatake §0033, "[t]his gain K... following several 1.").

However, Masatake does not explicitly teach input means which outputs the average value of the joystick voltage input value Vi read at every sampling time over a predetermined number of past occasions as a joystick voltage computation value Vic. Hirai teaches a stability compensating circuit of actuator system comprising means for sampling the input signal to generate a sequence of digital samples, means for generating a sequence of moving averages, means for converting the digital computed values to an analog signal, and a drive circuit (Hirai Fig. 1; Col 1 L. 60-Col 2 L. 48, "In a stability... the actuator."; Col 3 L. 42-Col 4 L. 8, "The control loop... can be compensated."), in order to compensate for the stability of the actuator (Hirai Col 2 L. 37-42, "and a digital filter... is compensated.").

Therefore, it would have been obvious to one of ordinary skill in the art, in view of Hirai, to modify Masatake by including means for sampling the input signal to generate a sequence of digital samples, means for generating a sequence of moving averages, means for converting the digital computed values to an analog signal, and a drive circuit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua C Liu whose telephone number is (703) 305-6435. The examiner can normally be reached on Monday-Friday, 8:30am-5:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anil Khatri can be reached on (703) 305-0282. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

jl

GEORGE B. DAVIS
PRIMARY EXAMINER